ARCH A022N: FRAMECAD STUDIO 2 NONCREDIT

Item	Value
Curriculum Committee Approval Date	12/07/2022
Top Code	020100 - Architecture and Architectural Technology
Units	0 Total Units
Hours	48 Total Hours (Lecture Hours 36; Lab Hours 12)
Total Outside of Class Hours	0
Course Credit Status	Noncredit (N)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	Yes; Repeat Limit 99
Grading Policy	P/NP/SP Non-Credit (D), • Letter Non-Credit (L)

Course Description

FrameCAD Studio 2 is a project-based intermediate course that develops design skills to produce a steel panel project using FrameCAD software. Students will be encouraged to design a project of choice and will work collaboratively to design and prepare each project for production. This is a continuation of FrameCAD Studio 1 and FrameCAD Structure and FrameCAD Detailer software will be used to design the projects and export to FrameCAD Factory software for production. NOT DEGREE APPLICABLE. Not Transferable. ADVISORY: ARCH A021N.

Course Level Student Learning Outcome(s)

1. Completers will demonstrate intermediate knowledge of steel frame panelization design parameters and manufacturing processes in their project design.
2. Completers will be able to design and produce a project of their own design using FrameCAD software and a FrameCAD maching.
3. Students will practice machine and work area safety procedures in and around the FrameCAD machine and lab work areas.

Course Objectives

- 1. Apply intermediate understanding of steel framing and panelization design parameters and considerations.
- 2. Design and create a complete structure of choice using FrameCAD Structure.
- 3. Transfer a complete structure of choice created in FrameCAD Structure into FrameCAD Detailer and complete the project for production.
- 4. Prepare designed structure for export to FrameCAD Factory software.
- 5. Practice safe work habits around FrameCAD machine and project production areas.
- 6. Fabricate FrameCAD produced components into a complete kit of panels.
- 7. Assemble a complete structure produced using FrameCAD with an impact drill and connector plates.
- 8. Produce complete package of documents and FrameCAD reports into a project portfolio.

Lecture Content

Intermediate Steel Frame Design Design parameters and considerations Design loads: wind, seismic, dead and live loads Load tables, spans, trusses Shear bracing options Coordination: panels, service holes, windows/doors Codes and Steel Standards FrameCAD Software - Structure (design project of choice) Settings and project set up Panels and doors Floor and anchoring Roof, trusses, overhangs FrameCAD Software - Detailer (design project of choice) Machine configuration Import of Structure file Constructability review Tooling checks Labeling and redundency checks Workplace Safety Machine safety Production area safety Assembly and impact drill safety Moving panels and coordination of material handling Export to Machine Consistency with machine settings Scheduling projects Intro to machine operation Project Reviews Export documents Present design and final work Generate engineering reports Generate production reports

Lab Content

Machine and Workspace Safety Review 440 Power safety Workspace saety zones Decoiler, machine Output area safety Eye protection and gloves, shoes Production safety Intermediate Panel completion and assembly Safety review Organize and plan output area Supervise and assist with panel assembly Intermediate coordination of files Transfering file to machine Coordination checks Troubleshooting file issues Optimizing and revising design

Method(s) of Instruction

- Enhanced NC Lect (NC1)
- Enhanced NC Lab (NC2)
- Online Enhanced NC Lect (NC5)
- Online Enhanced NC Lab (NC6)
- Live Online Enhanced NC Lect (NC9)
- Live Online Enhanced NC Lab (NCA)

Instructional Techniques

Instructional methods will include: lecture, lecture-demonstrations, class discussions, video tutorials, hands-on demonstrations, supervised production and assembly of parts and connection of panels, safety and clean up demonstrations.

Reading Assignments

FrameCAd manuals will be provided via PDF for students to review and reference. Students will research and collect data to support their design.

Writing Assignments

Project portfolio will include written project brief and some technical writing.

Out-of-class Assignments

Students will have to research and select appropriate doors and windows for their design project. Students will be assigned to research online city code and planning requirements for their proposed project and comply with applicable rules for their design project. Students will assigned to collect and summarize their research, notes, and project documents into a project portfolio for professional review. Students will generate ingineering reports and panel drawing for their project to include for their

project portfolio. Students will be assigned to collect cost data for their project and summarize steel coil, fastener, and attachment connector quantities and costs. Out of class assignments, readings, writings, and project portfolio will take approximately 4 hours per week (64 hours total).

Demonstration of Critical Thinking

Students will select and design their project and select materials needed. Students will analyze and coordinate their project based on optimization for production and assembly.

Required Writing, Problem Solving, Skills Demonstration

Students will design their own project and complete it using the software. Students will test their proejcts by scheduling on the machine to verify compatibility and to develop intermediate level project coordination.

Eligible Disciplines

Architecture: Any bachelors degree and two years of professional experience, or any associate degree and six years of professional experience. Architecture: Any bachelors degree and two years of professional experience, or any associate degree and six years of professional experience. Construction management: Any bachelors degree and two years of professional experience, or any associate degree and six years of professional experience. Engineering: Masters degree in any field of engineering OR bachelors degree in any of the above AND masters degree in mathematics, physics, computer science, chemistry, or geology OR the equivalent. (NOTE: A bachelors degree in any field of engineering with a professional engineers license is an alternative qualification for this discipline.) Masters degree required. Title 5, section 53410.1

Manuals Resources

1. FrameCAD. FrameCad Structure Procedures Overview, FrameCAD Limited , 03-01-2021 2. FrameCAD. Detailer Plus User Manual, FrameCAD Limited , 03-01-2021 3. FrameCAD. Detailer Configuration Quick Start, FrameCAD Limited , 03-01-2017